REMARKS

This application is a continuation of allowed U.S. application No. 09/780,313.

In this application, original claims 1-9 have been cancelled and new claims 10-17 have been added. In new claims 10- 17, the web inspection system is claimed more specifically than the preceding application in that the smart camera is connected directly to the host computer via an ethernet. This is an important and inventive distinction between Applicants' system and the system of the prior art as explained further below. It is believed that new claims 10-17 are fully distinguished from the art of record.

In the preceding application, the Ho patent (US 6,236,429) is cited as teaching a flaw image generator. However, this is not applicable to Applicants' assertion of patentability discussed herein. Further, Ho does not teach a smart camera system as claimed in the present invention.

The Roberts patent (US 5,440,648) was cited against the claims in the preceding application. Referring to Figure 1 of the Roberts patent, the Examiner will observe that data output from the cameras is fed to a multiplexer and interface unit 38. As stated in column 4, lines 15-21, of the Roberts patent:

> "Electrical cables 34 connect the cameras 30 to a multiplexer and interface unit 38 which combines the defect data for each transverse image line of the web 20 detected by all the cameras and then suitably passes the defect data over a cable 40 to an image processing unit 42 in a central computer 46."

This is in direct contrast to the present invention where all processing occurs in the smart camera, and in which the final processed data is sent **directly** to the host computer. Further, the host computer of the present claimed invention does not further process the web flaw data received from the smart cameras. The host computer of the claimed invention merely accepts the flaw data for display as claimed in claims 10 and 16.

Continuing, the Office Action likens the input/output unit 52 as the "ethernet" of the present invention. As stated in Column 4, lines 60-64, of the Roberts patent:

> "An input/output unit 52 in the central computer 46 operates address and data bus lines 54 connected to the unit 38 as well as to the illumination system 24 for providing control functions and for transmitting and receiving data."

The I/O unit 52 of the Roberts patent is not an ethernet as claimed in claims 10 and 16 Thus, the Roberts patent neither teaches nor suggests an ethernet for **directly** transmitting flaw image data to the host computer, which computer accepts and displays the flaws, only, without further processing the data.

Further Discussion of the Roberts Patent

For completeness, Applicants present the following discussion of the Roberts patent in contrast to the claimed present invention. Referring again to Figure 1 of the Roberts patent, the connection 34 between the cameras 30 and the MUX 38 are RS422 connections - these are NOT equivalent to the ethernet connection of the present invention. The Roberts' cameras 30 are connected to the multiplexer and interface unit 38' which receives line by line captured data from each of the cameras 30. Thus, the MUX 38 for each line scanned: pixel information for each scanned line of pixels, the location of the pixels, the grey scale, an end of line bit, and three (3) bits regarding the channel number (each camera has three channels). Upon receipt of this data from the cameras, the MUX 38 then adds four (4) more bits for the camera identification for a total of 24 bits sent to the host computer 46. (See column 13, lines 61-63.) The synchronized data collected by the MUX 38 - defect and no defect lines - is then sent to the host computer 46 which utilizes an image processing unit 42 to identify any defects.

There are several disadvantages of the Roberts system when compared to the present invention. Specifically, the Roberts cameras 30 send more information than required to the host computer 46, that is, image data of non defects, which slows down the

system. The Roberts system must have synchronization control utilizing the MUX unit 38. The MUX unit 38 receives "x"positions from the cameras 30 and then must determine "y" positions before sending the information to the host computer 46. Finally, the host computer 46 must perform image processing.

In stark contrast to the system disclosed by Roberts, the present invention is totally asynchronous. Only when a defect is detected in the smart camera is information sent to the host computer. Each camera of the present invention is a stand alone unit, and does not require the separate I/O control, MUX or image processing in the host as required by the Roberts system. Each camera of the claimed invention performs all image processing and sends flaw image data directly to the host using, e.g., internet protocol addresses, via the ethernet. This communication of data from each camera to the host is asynchronous, and does not require a MUX for synchronization. Finally, the host computer of the present invention does not perform further image processing.

Respectfully submitted,

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